



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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Applicant(s): **RENNER, HERMANN, ET AL.**  
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TC/A.U. **1754**  
Examiner: **Edward M. Johnson**  
Title: **PROCESS FOR THE REGENERATION OF PLATINUM GROUP METAL  
SUSPENSION CATALYSTS**

Docket No.: **032301.250**  
Customer No.: **25461**

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Sir:

**PRE-APPEAL BRIEF/REQUEST FOR REVIEW**

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## **PRE-APPEAL BRIEF/REQUEST FOR REVIEW**

### **A. INTRODUCTION**

#### **1. Status of Claims and Grounds of Rejection**

Claims 1 to 31 are pending in this application. Claims 1, 3-6, 9 and 11-13 stand rejected under 35 U.S.C. § 103(a) as unpatentable in view of *Davies*, (GB 1,090,294) taken with *Clough* (US 5,279,803). Claims 1, 7, 8 and 10 stand objected to and would be allowable if rewritten in independent form.

#### **2. Claimed Subject Matter**

Claim 1 is the only independent claim and is set forth below.

1. (Original) A process for the regeneration of a supported or unsupported suspension catalyst based on at least one platinum group metal, comprising dissolution of the platinum group metals present in aqueous HCl, using an oxidising agent for platinum group metals, filtration of insoluble constituents and precipitation of the platinum group metals by means of a reducing agent at a pH in the range from 2 to 10,

characterised in that

precipitation is carried out in the presence of a chelating agent for one or more metals from the series of metals of groups 2a, 3a, 4a of the periodic system and transition elements.

### **B. ARGUMENT**

The issue in this case comes down to a clear and unambiguous distinction between the terms “chelating agent” as used in this application and the term “metal chelate complex” as used by *Clough*. The term “chelating agent” must be given its plain and ordinary meaning. Of record herein are three dictionary entries (Wikipedia, dictionary.com and MSN Encarta) which all establish that the term “chelating agent” refers to a compound which combines with a metal to form a chelate. The resulting chelate is called a metal complex; see, Wikipedia. Courtesy

copies are attached. Therefore, there can be no doubt that a skilled person will understand that the term "chelating agent" in Claim 1 does not embrace a metal complex which is the result of the combination of the chelating agent with a metal.

*Davies* (GB '194) discloses a process for the recovery of at least one platinum group metal, such as palladium, platinum or gold from supported catalysts. The Official Action admits that *Davies* does not disclose utilizing the reducing agent at a pH in the range of 2 to 10 in the presence of a chelating agent.

*Clough* is relied on for disclosure of a process for recovering precious metals from carbonaceous ores. According to the Final Action, page 3, second paragraph: "*Clough* continues to teach wherein the recovery of the metal is carried out using a chelating agent along with a transition metal, wherein the pH can be maintained within the range of from 1-10."

The Final Action concludes, at the bottom of page 3, that it would have been obvious to utilize a chelating agent during the precipitation step of *Davies* because *Clough* discloses recovery of the metal using a chelating agent along with a transition metal and where the pH may be maintained within the range of 1 to 10.

However, applicants respectfully submit that the disclosure of *Clough* has not been properly construed. *Clough* teaches a process for recovering precious metals from carbonaceous ores by treating the ore with at least one added metal component in an amount effective to at least promote the oxidation of the carbonaceous material (col. 1, lines 55-60; Claim 1).

*Clough* further teaches that the metal component is a chelate, i.e. a complex of iron, copper, cobalt, vanadium or manganese with ligands (col. 4, lines 30-39). *Clough* says such complexes are metal complexes with chelating ligands (col. 4, line 40 to col. 5, line 2).

There is no disclosure or suggestion of a regeneration of a supported catalyst carried out with a chelating agent as defined in Claim 1.

Thus, *Clough* only teaches the use of metal complexes for pretreating a carbonaceous ore, but does not disclose that a benefit could be obtained by the presence of such metal complexes in the subsequent processing steps of dissolving the platinum group metal and precipitating the platinum group metal. *Clough* clearly teaches that the steps of dissolving the platinum group metal and precipitating the platinum group metal are carried out in the absence of the metal complex (col. 10, lines 37-61). See also, col. 11, line 13 to col. 12, line 19, where dissolving of the platinum group metal and precipitating the platinum group metal is carried out in the absence of the metal chelate (col. 11, line 13 - col. 12, line 19). Therefore, *Clough* would not motivate a skilled person to use a chelating agent in precipitation of platinum group metals following the treatment of carbonaceous ores with a metal chelate complex.

Still further, applicants submit that a skilled person would not consider employing the chelate complexes of *Clough* in the dissolution step of *Davies* based on common knowledge of the decomposing action of transition metals on hydrogen peroxide. It is common knowledge that iron, copper and manganese ions are strong catalysts for decomposing hydrogen peroxide. (Ullmann's Encyclopedia of Industrial Chemistry 5<sup>th</sup> Ed., Vol. A13, pages 446-447 of record). Therefore a skilled person would not consider adding compounds of these metals to the process of *Davies* where hydrogen peroxide is a reagent, because he would expect them to have a detrimental effect due to hydrogen peroxide decomposition.

In order to present a process which is said to be an advance over prior methods for recovering of precious metals from carbonaceous ores, *Clough* suggests contacting the ore with

at least one added metal component in an amount effective to promote oxidation of the carbonaceous material. See col. 1, lines 55-66. The conditions necessary to carry out the *Clough* process include chemically oxidizing at least a portion of the carbonaceous materials and then at least partially liberating the metal to be recovered from the ore. The second step involves actual recovering of the precious metals.

Clearly, the combination of *Clough* with *Davies* would not motivate a person skilled in the art to (1) replace the metal chelate complex of *Clough* from the carbonaceous pretreating step, (2) select instead a chelating agent instead of a metal chelate complex and (3) add the chelating agent to the *Davies* recovery procedure.

*Clough* discloses as an example of the specific conditions of the invention, the use of iron, copper or cobalt, together with a chelating agent, as shown in col. 4, lines 30-68. In these resulting metal complexes, all the ligand is bound to the metal, as becomes apparent from the metal to ligand mole ratios of from 1 to 3 disclosed in col. 5, lines 25-32. There is no suggestion in the *Clough* reference to use a ligand that is not complexed to a metal.

As evidenced by the dictionary definitions, a person skilled in the art would understand that a chelating agent is a compound that is capable of binding to a metal forming a polydentate metal complex. Thus, the metal complexes of *Clough* are not encompassed by the art recognized definition of chelating agents because metal complexes of *Clough* already contain a metal and, therefore, are not capable of binding further amounts of metal.

*Clough* teaches that the metal contained in the metal complex is an essential element of the process. Consequently, a person skilled in the art would not consider using a ligand not complexed with metal in place of the metal complex.

In view of the foregoing, applicants respectfully submit the rejection of the claims is improper as it does not establish that the subject matter claimed herein is *prima facie* obvious in view of the combination of references relied on in the Final Action.

Withdrawal of the Final Action at the Examiner's earliest convenience is respectfully requested.

Respectfully submitted,

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